AMENDMENTS TO THE CLAIMS

The text of all pending claims is set forth below. The following listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. – 18. (cancelled)

19. (currently amended) A method of pre-emphasizing an optical multiplex signal comprising a plurality of signals having different wavelengths, the plurality of signals transmitted from a transmitter to a receiver, the method comprising:

determining an average power for the signals to be transmitted to the receiver;

determining a first current power of the signals at the transmitter;

determining a second current power of the signals at the receiver;

determining new power values from the first and second current powers and the average power; and

adjusting a transmitting power of the transmitter according to the new power values, wherein determining the new power values is based on equalizing signal-to-noise ratios of the signals received at the receiver, wherein the plurality of signals is optically transmitted over N+1 optical amplifiers connected in series and having substantially equal amplification characteristics, and over N transmission links connecting the N+1 optical amplifiers, and wherein the new power values regarding at least one of the plurality of signals transmitted over the N+1 optical amplifiers are determined according to the following formula:

$$P_{IN}(\lambda)\_new = < P_{TN} > \cdot \frac{Q(\lambda)}{< Q(\lambda) >} \{in\ mW\},$$

wherein $<P_{IN}>$ designates the average power of the at least one signal at the transmitter, and wherein, for tolerating a balance of the signal-to-noise ratios of the signals received at the receiver, the function $Q(\lambda)$ is defined as follows:

$$\frac{Q(\lambda)}{<Q(\lambda)>} = k\frac{f(\lambda)}{\lambda}\cdot\frac{1}{N+1}\cdot\frac{G_{LINK}-1}{G_{LINK}^{\frac{N}{N+1}}\cdot\left[G_{LINK}^{\frac{1}{N+1}}-1\right]},$$

wherein G_{LINK} is an overall gain of a channel determined from the first and second current powers, $f(\lambda)$ is a spectral number function of the optical amplifiers, and K is a constant.

20. (previously presented) The method in accordance with claim 19, wherein adjusting the transmitting power is further based on spectral influences of a transmission link between the transmitter and the receiver.

21. (previously presented) The method in accordance with claim 20, wherein the spectral influences include an influence chosen from the group consisting of amplification, noise influences and attenuation.

22. (cancelled)

23. (currently amended) The method in accordance with ~~claim 22~~claim 19, wherein the function $Q(\lambda)/<Q(\lambda)>$ is approximated by $1/\sqrt{G_{LINK}}$.

24. (previously presented) The method in accordance with claim 19, wherein normalized power spectra of the signal at the transmitter and at the receiver are inverse functions to each other.

25. (currently amended) ~~The method in accordance with claim 19~~A method of pre-emphasizing an optical multiplex signal comprising a plurality of signals having different wavelengths, the plurality of signals transmitted from a transmitter to a receiver, the method comprising:

determining an average power for the signals to be transmitted to the receiver;

determining a first current power of the signals at the transmitter;

determining a second current power of the signals at the receiver;

determining new power values from the first and second current powers and the average power; and

adjusting a transmitting power of the transmitter according to the new power values, wherein determining the new power values is based on equalizing signal-to-noise ratios of the signals received at the receiver, wherein the new power values are determined using the following formula:

$$P_{IN}(\lambda)\_new := \langle P_{IN} \rangle \cdot \sqrt{\frac{P_{IN}(\lambda)}{P_{OUT}(\lambda)}} \cdot \sqrt{\frac{\langle P_{OUT} \rangle}{\langle P_{IN} \rangle}} \qquad \{\text{in mW}\},$$

wherein the pointed brackets <...> designate an averaging of an argument over ~~the~~ a bandwidth $\Delta\lambda$ of the signals, $P_{IN}(\lambda)$ designates the first current power, and $P_{OUT}(\lambda)$ designates the second current power.

26. (currently amended) ~~The method in accordance with claim 19~~A method of pre-emphasizing an optical multiplex signal comprising a plurality of signals having different wavelengths, the plurality of signals transmitted from a transmitter to a receiver, the method comprising:

determining an average power for the signals to be transmitted to the receiver;

determining a first current power of the signals at the transmitter;

determining a second current power of the signals at the receiver;

determining new power values from the first and second current powers and the average power; and

adjusting a transmitting power of the transmitter according to the new power values, wherein determining the new power values is based on equalizing signal-to-noise ratios of the signals received at the receiver, wherein the new power values are determined using the following formula:

$$P_{IN}(\lambda)\_new := \langle P_{IN} \rangle \cdot \left(\frac{P_{IN}(\lambda)}{P_{OUT}(\lambda)}\right)^{k} \Big/ \left\langle \left(\frac{P_{IN}}{P_{OUT}}\right)^{k} \right\rangle \qquad \{\text{in mW}\},$$

wherein the pointed brackets <...> designate an averaging of an argument over the bandwidth $\Delta\lambda$ of the signals, $P_{IN}(\lambda)$ designates the first current power, $P_{OUT}(\lambda)$

designates the second current power, and k designates a constant within the range O<k<l.

27. (previously presented) The method in accordance with claim 26, wherein an optimum of the constant k is selected such that system-related deviations of the signal-to-noise ratios occur are minimized.

28. (previously presented) The method in accordance with one of the claim 26, wherein the constant k is selected using a planning tool of a network management system or using measurements of the signal-to-noise ratios.

29. (currently amended) The method in accordance with ~~claim 19~~claim 26, wherein signal-to-noise ratios related to selected signals or groups of signals at the transmitter and at the receiver are determined for control purposes.

30. (currently amended) The method in accordance with ~~claim 19~~claim 26, wherein the transmitter and receiver comprise optical amplifiers.

31. (cancelled)

32. (currently amended) ~~The method in accordance with claim 31~~A method of pre-emphasizing an optical multiplex signal comprising a plurality of signals having different wavelengths, the plurality of signals transmitted from a transmitter to a receiver, the method comprising:

determining an average power for the signals to be transmitted to the receiver;

determining a first current power of the signals at the transmitter;

determining a second current power of the signals at the receiver;

determining new power values from the first and second current powers and the average power; and

adjusting a transmitting power of the transmitter according to the new power values,

wherein determining the new power values is based on equalizing signal-to-noise ratios of the signals received at the receiver,

wherein adjusting the transmitting power is further based on spectral influences of a transmission link between the transmitter and the receiver,

wherein the transmission links are part links of an optical network, and a pre-emphasis is executed for each part link,

wherein the new power values at the transmitter of a part link is determined using the following formula:

$$P_{IN}(\lambda)\_new = (P_{IN}) \cdot \frac{G(\lambda)^{-k}}{\langle G(\lambda)^{-k} \rangle} \cdot \frac{OSNR^{IN}(\lambda)}{OSNR^{PP}} \cdot \frac{h(\lambda)}{OSNR^{IN}(\lambda) \cdot \alpha - h(\lambda)},$$

wherein the optical signal-to-noise ratio value $OSNR^{PP}$ designates such constant signal-to-noise ratio which would be produced in standalone operation of the transmission link in the network, $G(\lambda)$ designates an wavelength-dependent gain of the transmission link, and $h(\lambda)$ designates a desired wavelength-dependent function of signal-to-noise ratios occurring at an end of the part link, wherein the ~~parameter α~~ parameter α is selected such that the average power $\langle P_{in} \rangle$ of channels at the input of the part link remains unchanged, and wherein $OSNR^{IN}(\lambda)$ designate wavelength-dependent signal-to-noise ratios at an input of the part link.

33. (currently amended) The method in accordance with ~~claim 19~~claim 32, wherein the plurality of signals are transmitted within a fully optical transparent network.

34. (currently amended) The method in accordance with ~~claim 19~~ claim 32, wherein the plurality of signals are transmitted using a DWDM transmission, and spectral spacings between channels occupied by the signals are selected at 100 GHz or below.

35. (currently amended) The method in accordance with ~~claim 19~~claim 32, wherein an additional pre-emphasis of powers of the signals at the transmitter is used for adjusting measured signal-to-noise ratios at the receiver.

36. (currently amended) The ~~Method~~ method in accordance with ~~claim 19~~claim 32, wherein a spectrum of the signal-to-noise ratios is determined and examined for a tilting or a non-linear deviations.

37. (currently amended) The ~~Method~~ method in accordance with claim 36, wherein the new power values are determined such that the detected tilting or non-linear deviation is compensated for.

38. (currently amended) The method in accordance with ~~claim 19~~claim 32, wherein at least one of the transmission links has a number of downstream optical amplifiers and optical wave guides, and the optical amplifiers are configured to be regulated such that an increase of an optical power spectrum at an input of each amplifier has a predetermined value.

39. (previously presented) The method in accordance with claim 38, wherein this predetermined value corresponds to a tilt of a predetermined noise figure.